

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
End Semester Examination Dec 2019/Jan 2020
B.Sc. (Nautical Science)
Semester -III
UG21T3302-SHIP STABILITY PAPER -I

Date: 11.12.2019

Max Marks: 70

Time: 3 Hours

Pass Marks: 35

Q.No 1 is compulsory. Answer any 6 out of the remaining 7 questions

Use of non-programmable scientific calculator is permitted.

- Q1. Explain in brief: (5 x 2 marks)
- a) TPC
 - b) FWA
 - c) Block coefficient
 - d) Metacentric height.
 - e) Free surface effect.
- Q2) A box-shaped vessel floats at a mean draft of 2.1 meters, in dock water of density 1020kg per cubic meter. Find the mean draft for the same displacement of vessel in water of density 1025 kg per cubic meter. (10 MARKS)
- Q3) A homogeneous rectangular log 6m x1.5m x1m has RD 0.7.Find its draft in FW. (Assume that the log will float with its largest face parallel to the water). (10 MARKS)
- Q4) A box-shaped vessel of 2000t displacement is 50mx10m x7m. Calculate the Reserve buoyancy in FW. (10 MARKS)
- Q5) A vessel floats in DW RD 1.016 with her winter loadline 100mm below water on the port side and 180mm below water on the Starboard side. If her FWA is 200mm, TPC is 24 and summer load draft is 9.6 m, find DWT available. (10 marks)
- Q6)500tonnes of cargo was discharged from the lower hold (KG 3m) of a vessel whose displacement and KG before discharging were 11500tonnes &6.3m.Find the final KG. (10 marks)
- Q7)A vessel displacing 8000t, has a rectangular deep tank 10m long,8m wide & 9m deep is full of SW. The KM is 7m and KG 6.2 m. Find the GM when 1/3rd of this tank volume of SW is pumped out. (10 marks)
- Q8)On a ship of W=8000t,KG 7.0m,KM 7.5m,100t of cargo is loaded on the upper deck (KG 9.2m) and 2m to port of the centre line. Find the list. (10 marks)
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